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症 例 報 告

ON TWO CASES OF ANEURISM OF THE ASCENDING AORTA

by

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We have had the opportunity of operating two cases of aneurism of the ascending aorta, and had no knowledge of other cases submitted to surgical correction in our country. We have thought it would be of interest to publish them.

Kampmier has stressed the seriousness of the location of an aneurism in the ascending aorta and proved in a series of 1,113 cases that survival after the initial symptoms was from 6 to 8 months.

The results of the surgical attempts to obliterate the aneurismal sac by means of ligature, introduction of foreign materials, and inducing of periarterial fibrosis have been insufficient and poor.

Technical difficulties in surgical resection and the seriousness of the lesion have made only a few specialized centers amenable this entity to systematic surgery since 1951. Though we must not forget that TUFFIER (7) in 1902 attempted for the first time the resection of a saccular aneurism of the ascending aorta, limiting his procedure to ligating the neck of the sac. The patient died 13 days later with gangrene of the sac. A few isolated cases were done subsequently without success. O'CHNER (8) resected a sacciform aneurism of the descending aorta in 1945. Monod (9) in 1948 published another case and BAHNSON in 1953 (6) reported 8 cases operated on, two of them located at the ascending aorta.

De Bakey, Cooley et al. (1, 2, 5, 3, 4, 10) in 1951 geve the standards of the systematic correction bv means of resection, demonstrating through their large experience that this is the soundest treatment. The largest series belongs to DeBakey et al. and in 1958 they reported their results of 179 cases (2) of aneurism of the thoracic aorta. In this series the saccular form of aneurism located in the ascending aorta was found in 26 cases, and their operative mortality was 28%.

Differentiation of the type of aneurism in whether sacciform or fusiform is important when considering surgical treatment. The sacciform lesions are currently luetic in origin, and they develop at the aortic arch or its vicinity. Generaly they have a narrow neck and the aortic wall is thick and firm. This last point is surgical important, because it decides to allow placing a clamp onto the aorta and to secure the suture line.

The most important point in the technical espects is a good exposure. Next is a

clear and careful dissection of the aneurismatic neck. Only when this step is accomplished, one can clamp the aorta at the level of the neck, dissect the sac and open it, and to continue the section by the level of the clamp leaving sufficient tissue allow placing of the sutures. The first row of stitches in U form oppose the intima and the second row of stitches in figure of 8 oppose and close the edges. The suture material used by us has been 3-0 silk with atraumatic needle. This technique is possible only when the lesion does not compromise more than a half of the circumference of the aorta.

In those cases with a fusiform aneurism or a wide necked sacciform aneurism, the portion of the aorta should be resected and replaced with a graft of vascular prosthesis. This procedure implies interruption of blood flow through the aorta. To avoid the serious consequences of this fact, such as cerebral anoxia and acute left ventricular failure due to over-distention, you can recur temporal or permanent by-pass and extracorporeal circulation.

Our two cases are as follows.

C. C. S. obs. 59/279 H. S. V. A 54 year-old male admitted on 28-Ⅶ-59. Three months previously admitted ago to another hospital complaining of sudden onset of severe pain at the epigastrium irradiated to the precordial region that was followed by vague precordial discomfort with a sense of retrosternal weight. A positive Kahn reaction was found, and 12 million units of penicillin were administered. Besides this a dense opacity in the left hemihorax was found, and the patient was referred to our surgical service for completion of work up. On admission his complaints had not changed. Weight 65 kgs. Radial pulse 90 per minute. Blood pressure 180/110 mmHg. The fundamental physical examination revealed lowpitched heart sounds with a smooth systolic murmur at the aortic focus irradiated to the neck and reinforcement of the second tone at this level. Chest X-ray study revealed an aneurismatic dilation of the ascending aorta, saccular in form and projected forward to the right, and pulsatile on fluoroscopy (Figs. 1, 2, 6). Besides this diffuse dilatation of the descending aorta, there was a moderate enlargement of the heart at the expenses of the left ventricle. The oscillogram at the middle third of the arms showed oscillation waves reduced in 50% at the left : (Fig. 8). There was no change in the graph taken at the legs. E. C. G. showed a normal electric axis with a semi-horizontal heart and moderate left ventricle load. He was taken to the operating table on 6-X-59 with the diagnosis of sacciform aneurism of the ascending aorta. A bilateral thoracotomy through the 4th intercostal space was performed. The findngs and performance were the following : Right lung adherent to the costal wall and the mediastinum once freed, a sacciform aneurism of the ascending aorta came into view (Fig. 4). Dimension 8x6 cm. Sternum was transsected and the 4th left intercostal space was opened. The descending aorta appeared slightly enlarged with firm wall.

Dissection of the neck once completed allowed Pott's clamp to be placed and transection distally (Fig. 5). The neck measured approximately 8 cm. and was sutured in two rows. The clamp was then removed and the remaining sac removed. The thorax cavity was drained bilaterally, and the thoracic wall was reconstracted by planes. Bilateral drainage to the thorax, and reconstruction of the thoracic wall by planes. The post-operative course was uneventful. X-ray study a month and a half later revealed disappearance of the aneurism with persistance of the diffuse dilatation of the descending

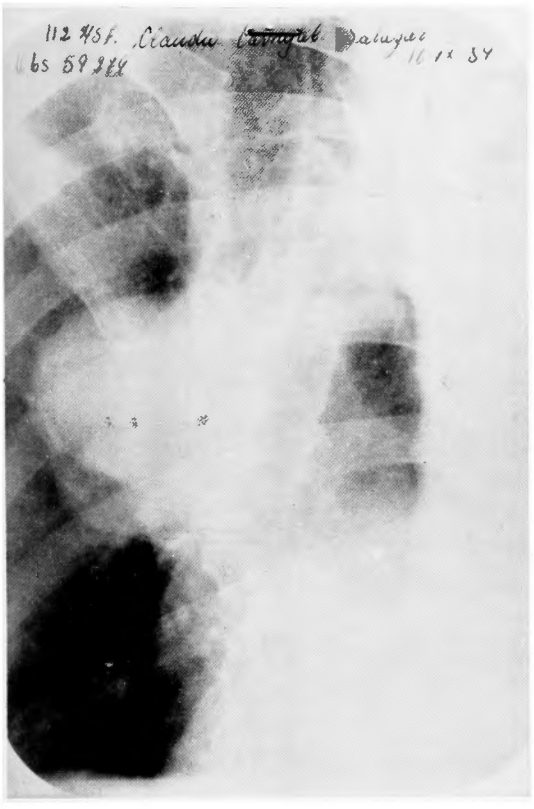


Fig. 1

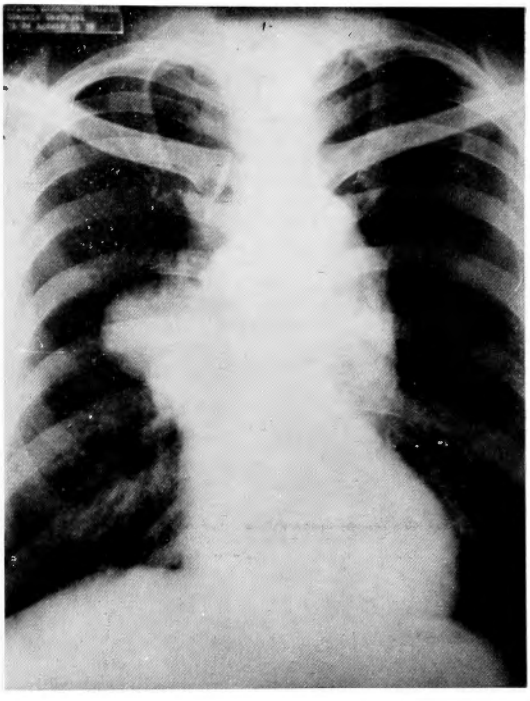


Fig. 2

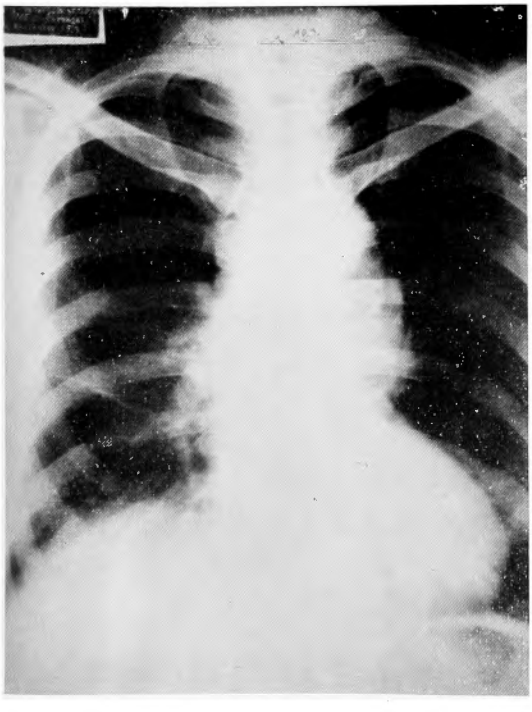


Fig. 3

Fig. 4

Fig. 5

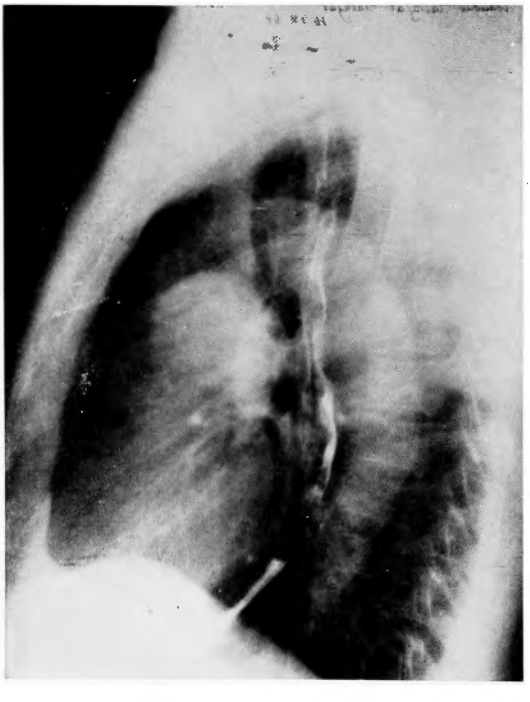


Fig. 6

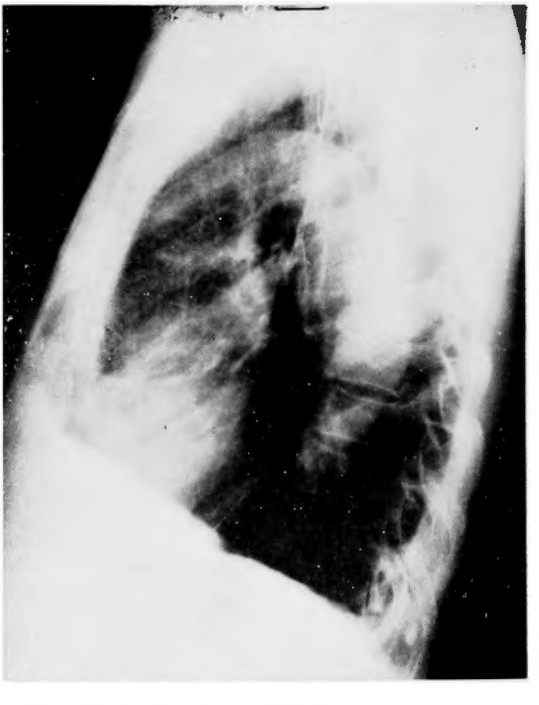
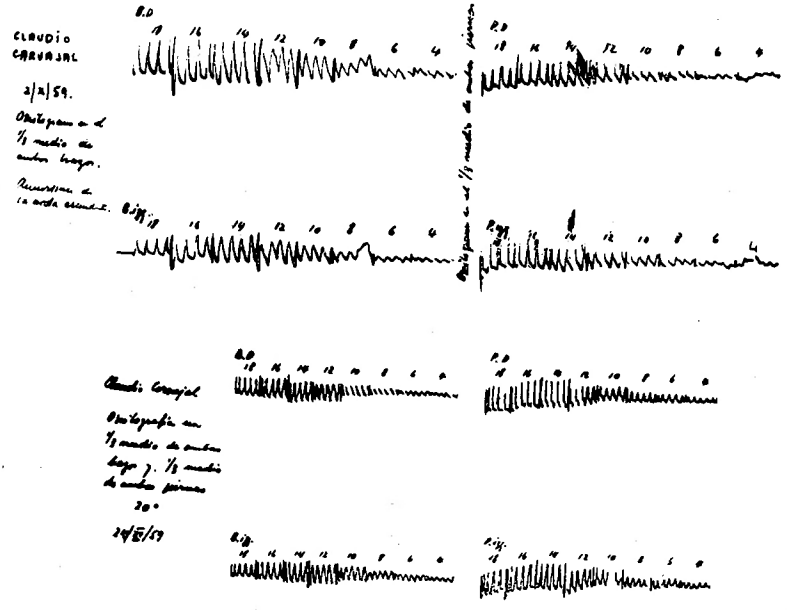


Fig. 7

Fig. 8



aorta (Figs. 3, 7). The histopathology of the resected sac confirmed the luetic nature of the lesion. Oscillograms in the arms showed no difference between right and left. (Fig. 8). Check up after 8 months showed no radiolcgic change. E. C. G. revealed persistence of the left ventricular load, and the blood pressure was remaining high.

J. A. A. Obs. 61-894. A 43 year-old patient refered thoracic pain irradiating to both arms for two years. Two months before his admission to this hospital and after a common cold, he complained of tightness in the chest, fatigue, and dyspnea on exertion. He was admitted to another hospital and then sent to this surgical department with diagnosis of aneurism of the thoracic aorta.

In his past history the most important feature was a syphilitic chancre which was unsatisfactorily treated twenty years ago.

On physical examination the most relevant points were cyanosis, dyspnea, blood pressure 150/90, and difference of radial pulses with practically abolition on the right side (Figs. 13, 14). Carotid pulse was normal on both sides. Lung auscultation revealed an inspiratory wheeze with coarse bronchial rales on both sides. At the aortic focus a systolic murmur was heard ; smooth with reinforcement of the second sound.

Laboratory data were essentially normal with exception of Kahn test that was informed as $^{+++}$. Chest film revealed a big aneurism of the ascending aorta (Fig. 9). The aortogram obtained by retrograde catheterization through the femoral artery confirmed the diagnosis (Fig. 9). Pulmonary function tests revealed severe impairment predominantly obstructive. E. C. G. was normal. Treatment was instituted with penicillin 800,000 units daily for fourteen days. With the diagnosis of aneurism of the ascending aorta he was taken to operation with an extracorporeal stand-by. Through a bilateral thoracotomy in the 4th intercostal space the lesion was exposed. A great aneurism 10×12 cm was found, and

that took its origin in the ascending aorta and compromised the brachiocephalic trunk extending to the right and posterosuperior medastinum. The superior vena cava was found firmly adherent to the lateral aspect of the lesion and partially collapsed ; the left brachiocephalic vein trunk crossed obliquely its anterior face. The sac was dissected at the base, finding a neck 7 cm. in length. The right carotid and subclavian arteries took their origin directly from the aneurismatic sac. Clamps were placed on its origin at the aorta and sectioned, suturing into rows with linen No. 80. (Fig. 11). Subclavian and carotid artery were anastomosed to the aorta with a Dacron prosthesis. (Fig. 12). On conclusion of this, pulse was present both in the carotid in the neck, and radial on the right. Postoperative course was uneventful and oscillographic study revealed no difference in undulations of superior and inferior limbs as seen in Figs. 13, 14).

The X-ray study revealed disappearance of the aneurism shadow.

SUMMARY

The authors reported their experience of successfully resected two cases of aneurism of the ascending aorta. In one case a Dacron prosthesis was placed between the aorta and right carotid and subclavian artery. Emphasis is placed on necessity of a wide exposure, clear dissection of the neck of the sac and suture of the rent in the aorta with double rows of fine non-absorbable material. If necessary a portion of the aorta should be resected and replaced by a graft or synthetic prosthesis. Providing the maintenance of circulation by means of temporal or permanent by-pass or extracorporeal circulation.

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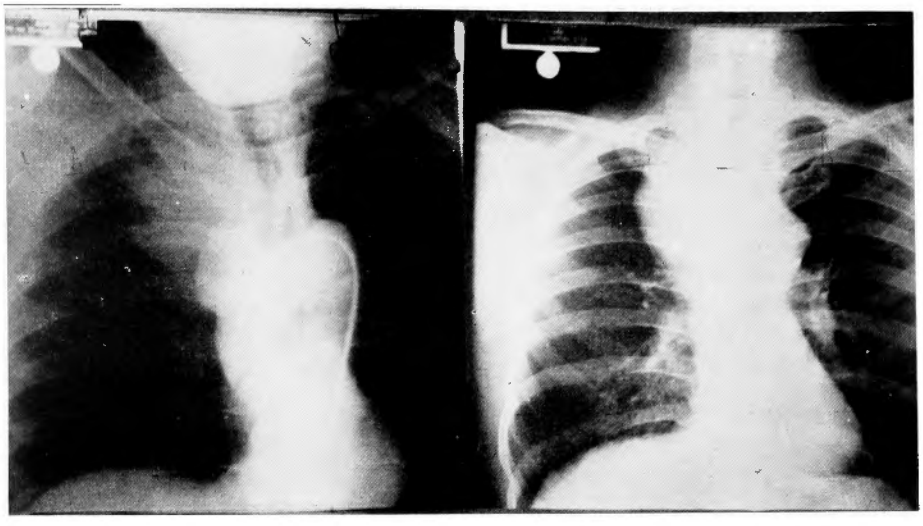

Fig. 9

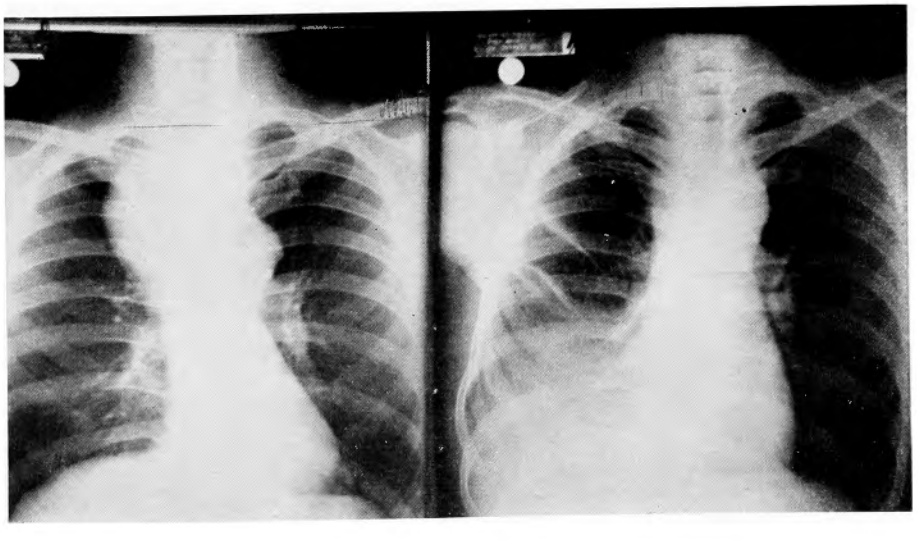

Fig. 10

Fig. 11

Fig. 12

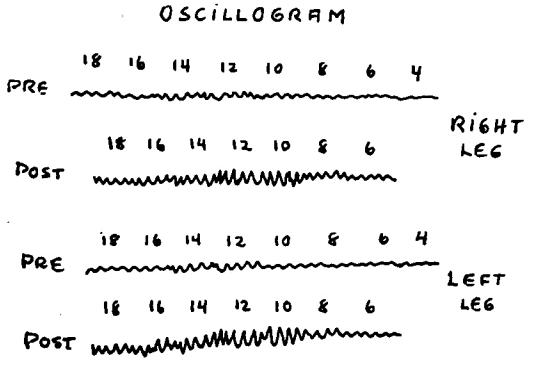
OSCILLOGRAM
18 16 14 12 10 8 6 4
PRE
RIGHT LEG
18 16 14 12 10 8 6
POST
18 16 14 12 10 8 6 4
PRE
LEFT LEG
18 16 14 12 10 8 6
POST

Fig. 13

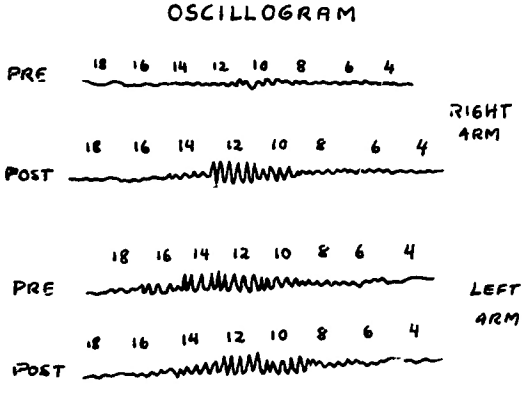
OSCILLOGRAM
PRE 18 16 14 12 10 8 6 4
RIGHT ARM
POST 18 16 14 12 10 8 6 4
18 16 14 12 10 8 6 4
PRE
LEFT ARM
POST 18 16 14 12 10 8 6 4

Fig. 14